ON EMPLOYMENT AND WAGE-DIFFERENTIAL STRUCTURE IN JAPAN: A SURVEY

By KONOSUKE ODAKA*

I. *Introduction*

Post-war developments in economic growth and in unemployment problems present remarkable contrasts between Japan and some of the more advanced economies. While the former has enjoyed a splendidly rapid growth and almost negligible unemployment, the latter have at times suffered slackening rates of growth and even higher unemployment. It seems as if Japan has indeed entered the "stage of mass-consumption," just as the United States did in the 1920's. There may be an element of truth in such a view. When one probes more deeply into the structure of the Japanese economy, however, it turns out that the analysis of the phenomenon is far more intricate than it appears on the surface. In fact, one may even become skeptical about the validity of a straightforward comparison between the both types of economies.

Of particular interest in this respect are the following three characteristics of the economy:

(1) The coexistence of an extremely low unemployment rate (in the neighborhood of 1 to 2 percent) and continued low incomes in agricultural, small business, and some service sectors;
(2) Simultaneous presence of large- and small-scale firms in the manufacturing sector; and
(3) Several peculiar characteristics of the labor market, such as employment tenure, wide wage differentials according to the size of the firm, enterprise unionism, etc.

One may note that these are in essence the featuring characteristics of the so-called "dual" economic structure. The persistence of such "duality" is theoretically puzzling, and it naturally demands rationalization as well as careful investigation. "This is especially so," as one specialist puts it, "if we look at the problem from the viewpoint of neo-classical economic theory, since one of the messages of neo-classical theory is that differentials would tend to disappear."[1] Among other things, the phenomenon of intra-industry wage differentials by size of the firms seems especially fitting in describing the nature of the problem before us.

The purpose of this paper is to present a brief survey on Japanese employment mechanism.[2] It should be understood at the outset that this is a problem-oriented survey; consequently, its coverage of literature is not meant to be comprehensive. Section II will be devoted to a discussion on the historical development of supply of labor, Section III to an analysis of the relationship of Japanese industrial structure to the wage-differential structure, and Section IV to a survey of selected literature on Japanese employment mechanism.

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1 Leibenstein [11], p. 4.

2 By "employment mechanism" we mean both behavioral and structural characteristics of the labor market.

II. *Supply of Labor à la Lewis*

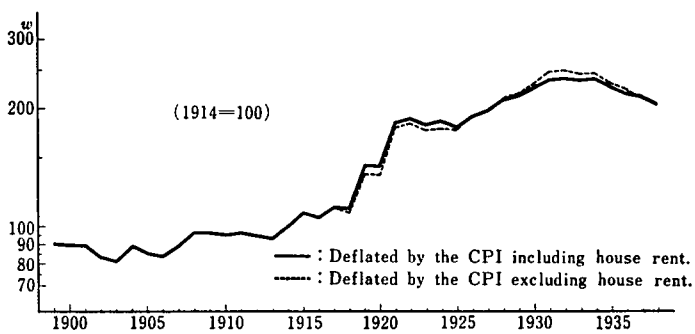
According to Fei and Ranis, Japanese economic development passed the phase of "unlimited supply of labor" at about the end of W.W. I., since their data indicate that the aggregate capital-labor ratio had begun to increase around that time.[3] In their words,

> ...in the course of a successful development effort, a capital-shallowing phase in the economy's industrial sector will gradually give way to capital deepening. The turning point—or, perhaps more realistically, the turning range—occurs when diminishing returns to labor-saving innovations are telescoped with the cessation of the phase of unlimited labor supply.
>
> In the case of Japan,...such a turning point occurred around 1916–19, leading us to believe that her phase of unlimited supply of labor came to an end at about that time.[4]

As an independent substantiation of their claim, the authors point to the fact that real wage rates in Japanese manufacturing industries showed an upward spurt in the 1910's.

Now, it is not easy to reconcile the rapidly rising real wage rates with an infinitely elastic supply of labor. Moreover, most authors seem to be in agreement that the period following W.W. I. marks a crucial stage in Japanese economic development, not only in terms of the growth rate but also with respect to technological advance. On the other hand, however, a reexamination of long-term series of real wages for male workers in manufacturing industries (shown in Figure 1 and Table 1) indicate that there was a phase of wide "plateau" in the 1920's and the 30's. Although the post-W.W. II data are not available for a comparable span of time, Umemura suspects that there will be another "plateau" after, say, 1955.[5]

FIG. 1. REAL WAGES IN MANUFACTURING INDUSTRIES, 1899–1938
(MALE PRODUCTION WORKERS OF ALL AGES)



Sources: Money wages: Umemura-Minami estimates; CPI: Yamada-Otani estimates (for references, see Table 1 sources).

[3] Fei and Ranis [4], [5] Ch. 7; the concept of "unlimited supplies of labor" was first developed by Lewis [13].

[4] Fei and Ranis [4], p. 304.

[5] Umemura [51], pp. 63–64.

TABLE 1. AVERAGE ANNUAL RATES FOR MEN OF CHANGE IN MANUFACTURING REAL WAGES

Period*	Rates of Change in Real Wages Using the C.P.I.	
	Including House Rent	Excluding House Rent
1899(P)-1905(T)**	.992	.991
1905(T)-1913***	1.012	1.012
1913 -1920(P)	1.080	1.069
1920(P)-1931(T)	1.044	1.054
1931(T)-1938(P)	.980	.974

* The periodization is due to Ohkawa-Rosovsky [32].

** 1899 is used in lieu of 1898.

*** The period of 1905–20 has been divided to two in order to make allowance for the hyperinflation occurred at the close of W.W.I.

Sources: Money wage rates: Umemura-Minami estimates; Consumer Price Index: Yamada-Otani estimates. Both are taken from: K. Ohkawa, M. Shinohara and M. Umemura, eds., *Chōki Keizai Tōkei* (Estimates of Long-term Economic Statistics of Japan Since 1868), Vol. 8, Tokyo: Tōyō Keizai Shimpōsha, 1967.

Admittedly it is awkward to rely solely on the behavior of wages in deciding whether or not the "turning point" has been reached. Nevertheless, one might wonder how he would explain the presence of such "plateaus," if the "unlimited supply" is no more existent. In addition, it is also widely accepted that the economy retains, even up to the present, the characteristics of a "dual" economy.

The presence of the duality may be illustrated by the nature of unemployment figures.

TABLE 2. THE PROPORTION OF UNEMPLOYED AMONG THE MALE LABOR FORCE*

Year	Rate of Unemployment**
1955	1.7
1956	1.5
1957	1.1
1958	1.4
1959	1.3
1960	.9
1961	.8
1962	.7
1963	.7
1964	.6
1965	.6

* 15 years of age and over.

** In percentage points.

Source: Sōrifu, Tōkeikyoku (Prime Minister's Office, Bureau of Statistics), *Rōdōryoku Chōsa Hōkoku* (Annual Report on the Labor Force Survey).

Earlier we noted that the recorded level of unemployment is extremely low in contemporary Japan. To illustrate the point, the percentage points of totally unemployed male adults (15 years and over) are shown in Table 2. However, we should be mindful of the fact that Japanese unemyloyment statistics, as reliable as they are, are not readily comparable to those of other nations due mainly to the existence of overemployment.[6] For instance, even somewhat superficial observation of Table 3 is sufficient to impress one with the magnitude of the

TABLE 3. THE COMPOSITION OF THE MALE LABOR FORCE: BY EMPLOYMENT STATUS

	Agriculture and Forestry				Non-Agriculture			
	Total*	Self-employed	Unpaid Family Workers	Employed	Total*	Self-Employed	Unpaid Family Workers	Employed
1955	781	57.2%	39.4%	3.5%	1,631	21.3%	6.8%	71.8%
1956	764	58.9	36.8	4.3	1,704	20.2	6.3	73.4
1957	736	58.7	35.9	5.6	1,801	19.7	6.0	74.2
1958	707	59.2	36.5	4.4	1,844	18.9	5.6	75.5
1959	665	59.3	35.2	5.9	1,927	18.5	5.1	76.2
1960	658	61.9	32.2	6.2	1,989	17.7	4.9	77.3
1961	635	62.8	31.8	5.5	2,051	17.1	4.5	78.3
1962	615	63.1	32.0	5.0	2,118	16.1	4.5	79.3
1963	580	64.0	31.7	4.3	2,189	16.0	4.4	79.5
1964	552	64.5	30.6	4.7	2,259	16.0	4.1	80.0
1965	532	65.2	29.7	5.3	2,330	15.3	3.9	80.8

* In ten thousands.

Source: Sōrifu, Tōkeikyoku (Prime Minister's Office, Bureau of Statistics), *Rōdōryoku Chōsa Hōkoku* (Annual Report on the Labor Force Survey).

labor force under the categories of "self-employed" and "unpaid family workers." Though declining rapidly in proportion, overemployment is found both in manufacturing and in service sectors, as well as in agriculture. If we may use the data for self-employed and unpaid family workers as a proxy for this phenomenon, the following figures may help illustrate this point (see Table 4).

It is well to bear in mind that overemployment is a structural (that is, inherent to the structure of the economy), rather than a cyclical, phenomenon. Althoguh several alternative explanations have been offered, its persistence seems best explained by the coexistence of the technically advanced, "capitalistic" sector and the family-owned, "traditional" sector, the former being operated under the profit maximizing principle, whereas the latter is aimed at, for instance, the maximization of total income.[7]

In the light of the above observations, one may be yet unpersuaded by the claim made

[6] The phenomenon is commonly referred to as "underemployment" or "disguised unemployment." However, "overemployment" is preferable, since it suggests a situation where more labor is *actually employed* than the amount that marginal productivity indicates to be the equilibrium point. See Ohkawa [30], p. 187 ff.

[7] Ohkawa's argument is adopted here. See, for example, his [28], p. 210 ff.; also, Gleason [6], pp. 64–80.

TABLE 4. EMPLOYMENT STATUS OF THE MALE LABOR FORCE: BY INDUSTRY (1962)

Industry	Total Employed*	Self-employed	Unpaid F. W.**	Employed
Agriculture and Forestry	615	63.1%	32.0%	5.0%
Fisheries and Aquaculture	44	40.9	22.7	38.6
Mining	44	4.5	2.3	93.2
Construction	233	19.3	3.4	77.3
Manufacturing	703	9.2	3.4	87.3
Wholesale, Retail, Finance, Insurance and Real State	469	30.7	8.5	60.6
Transportation, Communication and Public Utilities	230	2.1	.9	97.0
Services	280	22.5	3.9	73.6
Government	117	0	0	99.1
Total	2,735	26.7	10.7	62.6

* In ten thousands. Percentage points do not necessarily add up to 100 due to rounding.

** Unpaid family workers.

Source: Sōrifu Tōkeikyoku (Prime Minister's Office, Bureau of Statistics), *Rōdōryoku Chōsa Hōkoku* (Annual Report on the Labor Force Survey), 1962.

by Fei and Ranis without, at least, some qualifications. Furthermore, it may be possible to present, and to test the validity of alternative explanations of the rising real wages in the late 1910's and early 1920's such as:

(a) Rising relative importance of heavier industries and subsequent great shortage of skilled labor;

(b) The economic boom due to the war, followed by downward rigidity of money wages; and

(c) The increase in agricultural productivity sufficiently high to sustain an improved standard of living.

In short, the Japanese economy has been in a pseudo-equilibrium with simultaneous existence of overemployment of labor. The low level of unemployment is simply a reflection of this condition. So long as such is the case, the condition of full emploomentin the neo-classical sense is not completely satisfied.[8]

III. *Wage-Differential Structure*[9]

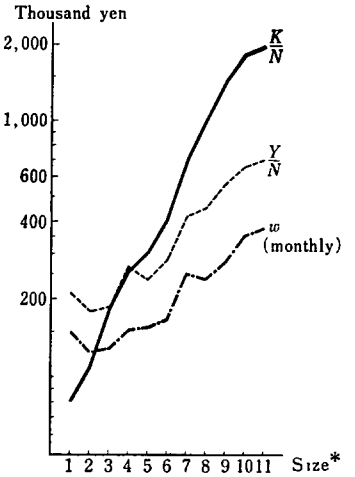
For this economy it seems reasonable to differentiate industrial enterprises according to their sizes. Not only are their external characteristics vastly different, but also their behavioral principles appear to be distinguishable. The coexistence of the "industrial giants" with the

[8] "Neo-classical" in the sense that unlimited supply of labor is no longer available. See, e.g. Enke [3] and Ohkawa-Minami [31] on this point. The Lewis model has been challenged by those who contend that empirical findings may be consistently explained in the strictly "neo-classical" framework, without appealing to such a dubious concept as unlimited labor supply. However, we shall not attempt at this point to pursue this discussion any further.

[9] The term "differential structure" was coined by Ohkawa and Rosovsky. See, e.g. their [27], pp. 77–83.

"less fortunate ones" has caught the attention of many scholars.[10] Some preliminary analyses have revealed, for instance, that the capital turnover rate decreases, whereas both sales and

FIG. 2. SOME INDICATORS OF DIFFERENTIAL STRUCTURE



* In terms of capital asset; see footnote (11) for description.
Source: E. P. A. [9], pp. 152–53.

TABLE 5. SELECTED RATIOS DERIVED FROM INCOME STATEMENTS OF MANUFACTURING FIRMS

Size of Firms (Size of Total Asset)*	Gross Sales / Total Asset (Capital-turnover Ratio)		Net Revenue / Gross Sales (Sales Margin)		Net Working Capital** / Total Asset (Safety Margin)		Net Profit / Gross Sales (Profit Margin)	
	1958	1960	1958	1960	1958	1960	1958	1960
I (- 1.9)	2.38	2.12	3.6%	5.1%	17.4%	20.8%	4.1%	6.1%
II (2- 4.9)	2.03		4.5		22.3		4.5	
III (5- 9)	1.82	1.82	4.9	6.8	23.2	22.1	4.5	7.7
IV (10- 49)	1.51	1.61	5.2	6.7	23.1	25.3	4.3	7.2
V (50- 99)	1.43	1.41	5.6	7.1	23.7	21.9	3.4	5.5
VI (100-999)	.98	1.23	8.3	8.6	33.4	26.5	4.3	6.0
VII (1000-)		.90		11.3		31.6		6.5
Average	1.33	1.29	6.2	8.2	28.9	27.6	4.3	6.4

* In million yen.
** Net working capital is the excess of the total current asset over the current liabilities.
Note: 1958 was a trough year; 1960 was approximately a midpoint of a peak-to-peak period.
Source: Ōkurashō (Ministry of Finance), *Hōjin Kigyō Tōkei Nempō* (Annual Statistical Report on Incorporated Firms), 1958 and 1960.

[10] Researchs on this topic have been innumerable; for a comprehensive survey of the literature, see Shinohara [40].

safety margins generally increase, as the size goes up (see Table 5 for explanations). On the other hand, no clear tendency is detected for the profit-asset ratio. It seems that the smaller firms compensate their disadvantages, which are reflected in the above two margins, by the high rate of capital turnover. The outcome of their effort is the roughly uniform rate of yields on the invested capital.

But it is the existence of wide wage differentials which is particularly intriguing. As Figure 1-2 displays, they move fairly parallel to average value productivity, with the gap between them slowly increasing. In addition, it should be observed that capital intensity (capital-labor ratios) moves up at a much faster pace than either wage or average productivity.[11]

The problem of wage differentials is not particularly appealing from theoretical points of view. In fact, economic theorists have long ignored this subject, thinking that it is only a short-run phenomenon.[12] Contrary to their expectations, however, there are various forms of persistent wage differentials in developed economies such as the United States. Accordingly, it was quite natural that after W.W. II monopolistic elements in the labor market caught the attention of economists, who then were led to engage in the studies of wage differentials.[13]

Even at this stage, however, interfirm and interplant differentials have not been touched upon frequently by American economists, making a striking contrast to the vast number of researches undertaken in the areas of inter-industry, occupational, and geographical wage differentials.[14] The reason for the neglect is quite obvious: there seems little economic justification for such differentials to persist. If small firms exist in the market side-by-side with larger establishments, despite various barriers to entry, it must mean that the smaller companies own some unique advantages which make them capable of competing with larger firms. The mere existence of the former indicates, according to this view, that their business performance is satisfactory.[15] Thus, there seems no a priori reason why there should be wage

[11] The sizes are defined as follows (in million yen):

Size No.	Size of Total Asset	Size No.	Size of Total Asset
1	0- 2	7	100- 500
2	2- 5	8	500- 1,000
3	5- 10	9	1,000- 5,000
4	10- 30	10	5,000-10,000
5	30- 50	11	10,000-
6	50-100		

Only general patterns of the diagrms are relevant for our discussion. In anlyzing these figures which are classified by the size of the firm, one should not be concerned with minute details of ups and downs along the curves. The graphs are drawn on the interfirm basis and, as such, may quite naturally be expected to register erratic movements. By the same token, one ought to be aware what he will get different patterns depending on the methods of classification he adopts. This point was made earlier by Johnston [8], pp. 110-35.

[12] "Under the assumptions of neoclassical theory, such differentials either were presumed to be nonexistent or were considered to be short-run aberrations that disappear in the long run." (Lester [12], p. 483)

[13] See, e.g. O.E.C.D. [26] for a listing of such studies.

[14] Cf. Reynolds-Taft [37].

[15] Steindl lists several reasons why small businesses survive under oligopolistic market conditions: differentiation in taste, force of habit, ignorance of relevant facts on the side of the consumers; goodwill which is established between producer and customer; imperfection in the labor market (that is, exploitation of wage earners); the oligopolistic condition itself: "the big firms which have established themselves as price leaders there have in most cases little to gain from the elimination of small firms which account for a small part of total supply." (Steindl [42], p. 60); and, finally, the gambling attitude of small enterprises. We might add to this list a general economic growth which certainly helps to preserve the existence of smaller firms and encourages their new entries. Parenthetically, the wide attention that Steindl's book has received in Japan attests to the keeness of the problem in the minds of the researchers.

TABLE 6. WAGE DIFFERENTIALS BY SIZE OF ESTABLISHMENT
(Unit of *w*: yen for Japan, $ for the U.S.)

No.	Industry	Occupations	Establishment Size	Japan			U.S.			Definition of Size Groups (*L*, *S* and *M*)	Year of Survey
				Number of Workers	Wages: Average Hourly Earnings	Wages: Index	Number of Workers	Wages: Average Hourly Rates	Wages: Index		
1	Textile	Calender tender; Finishing-range operator; and Mangle tender (*Asa-keorimono shiagekō*)	*S*	2,316	45.27	100	1,092	1.767	100	*S*: 10–499(J) 20–249(US) *L*: 500–(J) 250–(US)	1956(J) 1961(US)
			L	1,776	62.93	139	1,440	1.692	96		
2		Dyeing-machine tender, cloth and yarn (*Shinsenkō*)	*S*	6,948	49.72	100	3,039	1.847	100	Same as No. 1	Same as No. 1
			L	1,428	63.04	127	1,870	1.746	95		
3		Printer, machine and hand screen; Printing-machine helper (*Nassenkō*)	*S*	4,764	63.48	100	1,286	2.206	100	Same as No. 1	Same as No. 1
			L	384	64.20	101	1,488	2.642	120		
4	Clothing	Cutters, machine (*Saidankō*)	*S*	3,188	59.21	100	966	1.901	100	*S*: 10–499(J) 9–250(US) *L*: 500–(J) 251–(US)	Same as No. 1
			L	132	87.61	148	650	1.792	94		
5	Chemicals	Chemical operator; Helper; and Filler (*Kagaku hannōkō*)	*S*	1,860	99.23	100	24,394	2.903	100	*S*: 30–499(J) 50–499(US) *L*: 500–(J) 500–(US)	1961(J) 1965(US)
			L	5,948	142.71	144	32,851	3.198	110		
6		Maintenance man, skilled (*Kagaku kikai hozenkō*)	*S*	1,004	110.73	100	9,908	3.200	100	Same as No. 5	Same as No. 5
			L	10,794	138.11	125	23,342	3.500	109		
7	Petroleum	Petroleum pump-man; Pump-man's helper; Still-man; and Stillman's helper (*Sekiyu pomupukō*)	*S*	104	87.62	100	1,160	1.045	100	Same as No. 4	1956(J) 1943(US)
			L	928	133.46	152	2,742	1.287	123		
8	Iron & Steel Forging	Drophammer operator (*Kajikō*)	*S*	2,304	87.32	100	1,649	1.662	100	*S*: 10–499(J) 8–500(US) *L*: 500–(J) 501–(US)	1954(J) 1945(US)
			L	2,118	102.72	118	2,155	2.106	127		
9		Heater, forge (*Sōrokō*)	*S*	1,002	91.33	100	1,626	1.294	100	Same as No. 8	Same as No. 8
			L	4,638	123.11	135	2,843	1.518	117		
10		Guard and Watchman (*Shuei*)	*S*	822	60.81	100	277	.720	100	Same as No. 8	Same as No. 8
			L	3,462	94.37	155	461	.900	125		

11	Machinery	Lathe operator, all classes and kinds (*Sembankō*)	*S*	36,284	60.16	100	19,775	1.034	100	Same as No. 8	Same as No. 8
			L	9,772	85.07	141	13,506	1.141	110		
12		Milling-machine operator, all classes (*Furaisubankō*)	*S*	4,376	58.43	100	8,712	1.001	100	Same as No. 8	Same as No. 8
			L	2,772	79.85	137	9,932	1.141	114		
13		Welder (*Gasu, denki yōsetsukō*)	*S*	4,180	66.02	100	8,131	1.079	100	Same as No. 8	Same as No. 8
			L	1,140	71.49	108	8,384	1.184	110		
14		Chipper and grinder; Grinding machine operator (*Kemmabankō*)	*S*	4,044	55.16	100	11,209	.950	100	Same as No. 8	Same as No. 8
			L	3,972	79.25	144	20,374	1.117	118		
15		Assembler (*Kikai kumitatekō*)	*S*	14,224	64.36	100	32,796	.936	100	Same as No. 8	Same as No. 8
			L	6,256	85.64	133	35,136	1.081	116		
16	Radios	Radio assembler (*Kei-denki kumitatekō*)	*S*	3,302	52.60	100	2,664	.841	100	Same as No. 8	Same as No. 8
			L	2,854	79.36	151	4,191	.990	118		
17	Transport Equipment	Motor vehicle assembler, all kinds (*Jidōsha kumitatekō*)	*S*	1,632	62.21	100	7,659	1.334	100	*S*: 30–499(J) 51–500(US)	1955(J) 1950(US)
			M	504	93.43	151	4,999	1.410	106	*M*: 500–999(J) 501–1000(US)	
			L	3,008	105.54	170	32,136	1.542	116	*L*: 1000–(J) 1001–(US)	

Sources:

Data for Japan come from *Chingin Kōzō Kihon Chōsa* [Basic Survey of Wage Structure] or its equivalent for the respective years; the title of the survey changes from time to time (i.e. *Shokushubetsu-tō Chingin Jittai Chōsa, Chingin-kōzō Kihon Chōsa, Chingin Jittai Sōgō Chōsa*, and so on). Occupational wages may be obtained by consulting their Table 3 (Table 2 for the year 1954).

Data for the United States are taken from Industry Wage Surveys by the U.S. Department of Labor, Bureau of Labor Statistics as listed below:

a) B.L.S. Bulletin No. 952, *Wage Structure: Metalworking Industries, 1945*, pp. 39, 46 and 80.
b) B.L.S. Bulletin No. 1311, *Industry Wage Survey: Textile Dyeing and Finishing April-May 1961*, p. 21.
c) B.L.S. Bulletin No. 1323, *Industry Wage Survey: Men's and Boys' Shirts (Except Work Shirts) and Nightwear May-June 1961*, p. 17.
d) B.L.S. Bulletin No. 1321, *Industry Wage Survey: Work Clothing May-June 1961*, p. 16.
e) B.L.S. Bulletin No. 1529, *Industry Wage Survey: Industrial Chemicals, Nov. 1965*, p. 17.
f) B.L.S. Bulletin No. 762, *Earnings in Southwestern Petroleum Industry*, April 1943, p. 28.
g) B.L.S. Bulletin No. 1015, *Wage Structure: Motor Vehicles and Parts, 1950*, p. 17.

Occupations Nos. 1–3 rely on (b); No. 4 on (c) and (d); Nos. 5–6 on (e); No. 7 on (f); Nos. 8–16 on (a); and No. 17 on (g).

differensials between different sizes of enterprises.

It is necessary at this point to present evidences that the existence of intra-industry wage differentials is not illusory and to supply a measure of their magnitudes. We may proceed for this purpose in two different ways. One is to refer to previous works done by others and the other to provide fresh evidence of our own.

As to the former approach, it suffices to mention the following two contributions. First, Takizawa's work attempts at a Japan-U.S. comparison of both wage and average value productivities by industry, relying on the data taken from the Censuses of Manufactures of the respective countries.[16] His conclusion is simply that the magnitudes of their differentials in Japan by far exceed the counterparts in the United States.

Second, Blumenthal has applied the analysis-of-variance method to the data from 1961 *Chingin Jittai Sōgō Chōsa* [1961 Basic Survey of Wage Structure].[17]

To be able to say something definite concerning intra-industry wage differentials among workers, one must take note of at least four discriminating factors: (a) industrial classification, (b) age distribution, (c) skill-mix, and (d) sex, education, and other sociological attributes of the workers.[18] It is perhaps only the second factor that calls for special comment, since it is observed that the wage scale in a typical Japanese enterprise is upward-grading in accordance to the age of the worker. Consequently, the work force distribution of smaller companies, which shows frequently high concentration of young workers, undoubtedly yields a lower average than a group with more symmetric distribution. In fact, Sumiya once argued that there are no intra-industry wage differentials as such, for they are essentially reduced to differences in age distribution of the work force.[19]

Blumenthal has discovered, by contrast, that "the inter-scale wage differentials are a real problem in the Japanese economy and cannot be explained away solely by differences in the age structure."[20] Nonetheless, he finds that demographic factors (age and sex) have by far the greatest "explanatory power" in terms of the coefficients of determination: they account for as much as 74 per cent of the overall wage variations. On the other hand, industry and size explain about 19 and 10 percent, respectively.

Having ascertained that the workers with equivalent personal qualities (sex, age and education) receive unequal remunerations in different industries and size groups, the author proceeds to seek explanations. As a result of a covariance analysis, average productivity and unionization are found to be significant: the elasticity of the former yielding 0.130 and of the latter 0.111, both at average points of the variables; whereas the excess-demand factor (unemployment) does not exert any visible effect upon wage structure.

As an evidence of our own, the problem of skill-mix will be taken up, for little attention has been paid to the occupational wage structure in Japan. Unfortunately, not many materials are at hand for carrying out the analysis. The data reported in the surveys on wage structure by the Bureau of Labor Statistics have been utilized for the United States, and those collected by the Ministry of Labor through *Chingin Kōzō Kihon Chōsa* [Basic Survey of Wage

[16] Takizawa [48], Ch. 2.

[17] Blumenthal [2].

[18] In addition, the geographical location of the firm should be taken into account. However, this factor has received little attention up to the present.

[19] Sumiya [43], Ch. 5.

[20] Blumenthal, *op. cit.*, p. 60.

Structure] for Japan.[21]

It is hard to attain precise correspondence between the two countries on occupational categories and firm sizes. With respect to the first point, the definitions of occupational titles given in the appendices to the *Basic Survey of Wage Structure* have been compared with those in *Dictionary of Occupational Titles* published by Bureau of Employment Security, U.S. Department of Labor (in 2 volumes, 3rd ed., Washington, D.C., 1965). In spite of the careful checking, the correspondence remains loose; for one thing, the occupational categories employed in the American surveys are much finer than their counterparts in Japan. The sizes of the firm are, on the other hand, measured by the total number of employees. After the scrutiny, a sample of seventeen occupations have been chosen from eight manufacturing industries. For the sake of simplicity, the computation has been confined to male production workers. Furthermore, efforts have been made to select the years in as cyclically similar positions as possible; for it is known that wage differentials tend to contract during the business upswing and widen during the recession.[22]

It is clear from Table 6 that in all but three cases (Nos. 3, 8 and 13) differentials are much greater for Japan.[23] As for the three exceptions, additional computations have been made to check the consistency of the results for other years. As Table 7 indicates, textile printer (No. 3) and iron worker (No. 8) have shown relatively small differentials throughout the years. By contrast, the wage differentials of welders (No. 13) are not particularly small for other years. Eliminating welders from the exception list, we may conjecture as a reason for relatively small differentials among the remaining two categories (Nos. 3 and 8) that each of them consists of two heterogeneous occupations: (i) indigeneous skills cultivated by grass-roots workmen and (ii) relatively modern skills introduced from Western countries since the

TABLE 7. INTERTEMPORAL CHANGES IN WAGE DIFFERENTIALS, FOR OCCUPATIONS NOS. 3, 8 AND 13 (JAPAN)*
(Unit of Earnings: yen)

Year	Size Groups	Occupational Groups					
		No. 3		No. 8		No. 13	
		Average Hourly Earnings	Index	Average Hourly Earnings	Index	Average Hourly Earnings	Index
1955	*S* (10–499)	69.80	100	85.89	100	64.80	100
	L (500–)	76.02	109	103.15	120	83.80	129
1957	*S* (10–499)	62.56	100	113.36	100	72.79	100
	L (500–)	69.43	110	126.25	111	96.69	133
1961	*S* (10–499)	95.44	100	136.95	100	88.90	100
	L (500–)	79.90	84	147.76	108	107.14	121

* For occupational titles and sources, see Table 6.

[21] The same series of surveys as used by Blumenthal [2]. The survey has been conducted annually since 1948, but its title varies slightly from year to year.

[22] See Reder [36]; Taira [46], pp. 98–100.

[23] It is interesting to investigate why intra-industry wage differentials *do* exist in the United States. However, this will be a topic for a separate research.

Meiji era.

It is beyond our present scope to prepare a theoretical framework for uncovering the entire mechanism of the differential structure. However, one may list a few relevant hypotheses concerning this problem.

(a) Because of both technological and pecuniary economies of scale, the smaller firms are definitely at a disadvantage. Consequently, in order to be competitive, they have to rely heavily on cutting labor costs; that is, low wage rates are essential for their survival.
(b) Profits for the smaller firms often include remuneration for the management services.
(c) The element of uncertainty is greater, the smaller the size.
(d) The time horizon is likely to be shorter for the smaller companies.
(e) The smaller corporations often maintain subsidiary relationships with larger ones. This means that the one is not independent of the other. And,
(f) The quality of production machinery, as well as the quality of engineering technology, is inferior in the smaller enterprises.

In any event, such marked contrasts between large and small firms are sufficient to provide a strong backing for the conventional treatment of the employment mechanism—namely, dividing it into subsections according to the size of the firm.

IV. *Survey of Selected Literature on Employment Mechanism*

(1) *Supply of Labor*

For a given size of population, it is suggested that the labor force comprises several subgroups, distinct in their behavior.[24] The argument may perhaps be summarized in the following classification:

$$\text{Labor committment}\begin{cases}\text{(A) long-run}\\ \text{(B) short-run}\begin{cases}\text{(a) permanent force}\\ \text{(b) secondary force.}\end{cases}\end{cases}$$

The choice of occupation, of geographical location of work place, and the setting of time to enter and to withdraw from the labor force, etc., naturally come under the heading (A). The major forces which determine the long-run supply of labor to the manufacturing sector are: (1) net increase in population and (2) change in the composition of the labor force. Given population increase, the latter is primarily influenced by the expected future returns, along with all the other non-pecuniary elements. If we define the discounted, current expected returns as

$$EY=\int_0^{t^*} Y_t e^{-rt}dt, \qquad (t^* \text{ being the time of retirement})$$

where Y_t is the income at time t, and r is a discounting factor, then the long-run supply of labor to an occupation A relative to B, say L_A/L_B, will be determined by the ratio of the two expected returns, EY_A/EY_B. Tracing such a relationship, one will obtain a supply curve of labor to A in relation to B. The slope and curvature of the function are determined by individuals' non-pecuniary preferences. Moreover, to be more precise, we should also take

[24] Umemura [54]; also, Tsujimura [50].

into consideration the distribution of EY over time, not only the absolute magnitude of it.

In actuality, however, recruiting for industrial employment a person who is engaged in a traditional enterprise as head of a family involves more than just the expected future income. He will naturally demand additional compensations for occupational adjustment, for training, for a new residential place and the cost of transfer—although a portion of such additional expenses will be covered by the sale of his old properties.[25] Furthermore, the deficiencies in information media may greatly hinder the process.

As for the category (B), the "permanent" labor for (a) is fully committed to work and its size may be considered to be fixed in the short-run, provided that hours and intensity of work remain constant. This last point could very well be disputed, but it seems not too farfetched to take those two factors as given, since hours and other conditions of work are other conditions of work are normally not at the mercy of individual works, at least for a short period of time[26]. By contrast, the portion (b) is susceptible to cyclical fluctuations. Umemura has noted that it is convenient to describe the behavior of the secondary force in terms of two hypotheses: (i) additional worker hypothesis and (ii) marginal worker hypothesis. The former refers to the behavior where labor committent is a decreasing function of real income; according to the latter, on the other hand, an additional employment is an increasing function of job opportunities[27].

Labor Participation Rates

With the above discussion in mind, let us take a quick look at the actual record of labor supply since 1945. The most thorough research in this area has been done by Umemura. By using the investment-GNP ratio and the growth rates of GNP as standards of reference, Umemura divides the whole postwar period (1945–62) into three stages: the recovery stage, 1945–51; the period of gestation for future growth, 1952–55; and the period of accelerated growth, 1956–61. The trend of increase in the labor force matches nicely witn this staging of development. The labor force as a whole increased at 2.8 per cent per annum between Jnne 1950 and June 1955, whereas it grew at 1.5 percent per annum between June 1955 and June 1960, both adjusted for seasonal and cyclical variations. The decline of the rates from the former to the latter periods was much sharper for the female labor force (from 3.5 to 1.0 percent per annum) than for the male force (from 2.4 to 1.8 percent per annum).[28]

The trend values of labor participation rates since 1949 also registered an unmistakable peak during the years 1954/55; the increase was particularly pronouncing for female labor force. In other words, labor participation rates were in a parallel relationship to the increase in real income per capita during the earlier period. This is apparently to fly in the face of theory. Umemura thinks the reason for this contradiction lies in the extremely limited job opportunities immediately after W.W.II. Put differently, the participation rates gradually

[25] This point is elaborated on the basis of empirical data by Murakami-Kubo [19]. The minimum amounts of income sufficient to induce farmers to move out of agriculture have been estimated by Masui [14], p. 51.

[26] "...since universal perfect competition is consistent with fixed hours of work in production, each worker is subjected to a constraint which, in general, prevents his adjusting the supply of his labor to the going wage-rate. Consequently, his own valuation of his marginal factor may fall short of, or exceed, that of the market." (Mishan [17], pp. 210–11). Mishan thinks that this "indivisibility" of labor supply accounts for the upward increasing supply curve of labor for the industry as a whole.

[27] Umemura [54].

[28] Umemura [56], p. 108.

moved up during the period as the accumulated excess supply decreased with the increasing demand for labor.

After 1955, the participation rates went down steadily, contributing significantly to the decline in the rate of change in the labor force, as noted above. The rates for males over 15 years of age, which stood at 85.7 percent in 1955, declined slowly until it hit 84.5 percent in 1960. The movement of the rates for the female force (over 15 years of age) paralleled roughly that of the male force, descending from the peak of 55.6 percent in 1956 to 53.8 percent in 1960. Umemura ascribes the remarkable decline of participation rates since 1954 to the rapid increase in real income, as well as to the subsequent decline in multiple job holdings during the period. He found, in fact, a strong inverse association between real income and participation rates for this period (June 1955–June 1960).[29]

As a matter of historical background, labor participation rates have generally been declining since the 1920's.[30] Their increase during the first and second stages of the post-war development may have been due to a temporary distortion of this long-run trend, caused by the postwar readjustments. Furthermore, it is worth noting that Umemura finds the general pattern of movements in labor participation quite comparable to that of the United States; the only modification seems to be that the participation of married women above 20 years of age is much lower in the United States. This phenomenon may be explained by the difference in the proportion of women classified as "unpaid family workers" in both economies.[31]

Distribution of Labor Force

The shift in distribution of the labor force among different sectors of an economy is one of the significant features in economic development. The overall growth in *GNP* can actually be separated into three factors which are responsible for the resulting growth rates: change in gainfully employed population, increase in aggregate output per worker, and growth in average productivity due to transfer of workers.[32]

The most noteworthy redistribution of labor force has been the shift from agricultural to manufacturing sectors. The annual exodus of labor force from agricultural sector is estimated to have been in the order of 170,000 to 210,000 for the Meiji period, 180,000 to 240,000 during the period between the two World Wars, and over 400,000 to 500,000 after W.W.II. It is pointed out that that labor exodus in Japan has been fairly stable (with a slight upward trend) in the pre-W.W.II. years, making a striking contrast with the postwar days.[33]

The actual magnitude of the exodus is associated with relative expansion of the second and the tertiary sectors of the economy vis-à-vis agriculture, so that it cannot be entirely free from the influence of secular fluctuations.[34] However, the stream of transferring force has moved always in one direction; recessions have merely caused slowing-down of the outflowing stream, but not the reversing of the current itself.[35]

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[29] *Ibid.*, p. 110. The participation rates for male workers (x) are related to per-capita consumption expenditures (y) as follows: $x = 90.449 - .026y$ ($R^2 = .957$).

[30] Umemura [57].

[31] Umemura [55], pp. 111–12.

[32] Ohkawa-Rosovsky [45], p. 579 ff.

[33] Umemura [51], Ch. 8; cf. Namiki [23], pp. 151–54, 166; also, *ditto.*, [22].

[34] Minami-Ono [16]; Umemura [56], pp. 93–96.

[35] The reversal of the manpower current was said to have been frequent (especially for female labor) in the prewar period. See, for example, Sumiya [45].

Overemployment and Labor Sulppy

It has been long claimed that unemployment in Japan is not only small in quantity but also insensitive to secular fluctuations. In terms of the short run, one may note the following three points in this connection. First of all, Umemura has shown that the rates of unemployment are by no means constant through time. By applying a relatively simple method of dividing seasonally adjusted series by trend series, he has found that the unemployment data could serve as a business indicator despite its small amplititude.[36] This indicates that the labor market is functioning, at least in part, as the text book claims it should. Secondly, one may note that the size of the labor force is partly a function of job openings, and it shrinks when demand declines. Thirdly, it is observed that unpaid family workers in both agricultural and non-agricultural sectors do increase during the recession, absorbing the workers who would otherwise be unemployed.

The last of the above observations takes us to a long-run perspective: how to explain the absolute level of unemployment, which is second to nothing in its magnitude. A hypothesis is that there is "overemployment," or low-income employment, both in agricutlture and in non-agriculture.[37] The social framework in which this mechanism operates is the system of self-employment. This is typically found among farmers (small landholders), retail merchants, artisans, and owners of small workshops. It is conceivable that those who come under this category do not maximize their profits but perhaps maximize total product or, alternatively, total utility of income.

As a matter of evidence, the total man-hours of labor for the average farming household are calculated to be 6,000 to 7,000 hours per year, in contrast to 3,200 to 3,500 hours per year for the average household of industrial workers residing in metropolitan areas.[38] Furthermore, the rate of (wage-equivalent) remuneration of the farmer is, on the average, a half of that of the worker. Similar earnings-differentials are found among retailers' or artisans' households vis-à-vis industrial workers'.[39]

It would be legitimate to call the "self-employed" sector "traditional" only in the following sense: that the modern day household has been separated from enterprise in terms of bookkeeping and of legal arrangements, whereas such separation is exceptional in this sector. One should note that being traditional is not equivalent to being irrational.

Two Types of Supply Decisions

At this juncture, one cannot overlook an important question which has rarely been discussed by theoretical economists: who is the supplier of labor force? Is it primarily an individual decision to enter the labor force; or is it rather a familial decision-making that is relevant? This question is by no means superficial in an economy where a large number of agricultural, service and even part of manufacturing production are in the hands of "family enterprises."[40] Members of a family who are engaged in economic activities in this manner seldom regard themselves as "workers" and do not receive pecuniary compensation as such.

[36] Umemura [53].

[37] Ohkawa [30], pp. 206 ff., 226 ff. and 295 ff.

[38] Noda [24], p. 145. Actual measurement of the magnitude of overemployment is attempted in the same volume where Noda's contribution is found.

[39] Umemura [55], pp. 97-101.

[40] For a theoretical treatise on the behavior of agricultural household in this connection, see Nakajima [20].

This explains why they may be quite willing to work at the point where average, instead of marginal, productivity of labor is equal to the rate of earnings.[41] An empirical investigation by Takahashi on agriculture in *Kyūshū* area has shown that the labor input has a maximum point where average labor productivity is equal to the wage rates of agricultural day laborers. According to him, however, the determination of the actual level of the input is affected by the general standard of consumption in the surrounding region as well as by the opportunity of side-employment.[42]

In this connection, Tsujimura has argued, on the basis of increasing marginal disutility of labor and decreasing marginal utility of real income of the household, that the schedule of labor supply is necessarily downward sloping with respect to wage rate.[43] In other words, he thinks that the substitution effect between income and leisure is overwhelmed by the income effect. A comprehensive, econometric investigation on this point is attempted by Obi and others, by utilizing cross-section (family expenditures) data; they observe that the introduction of habit formulation as a shift parameter yields satisfactory results.[44]

Signs for a Change

There have been growing indications that the situation is changing. By 1960, the growing demand for labor has reached the stage where recruitment of young "graduating" forces did not meet the industrial need of labor. Perhaps the best indicator of the change is the narrowing inter-firm wage differentials in new entrants' wages (see Table 8). Some natural consequences of this are: (1) that structure of agrarian economy is facing a transformation; i.e. (a) the rate of change in the trend value of agricultural labor force has turned to negative after 1954,[45] (b) more and more small landholders are engaged in side-employment and, in some cases, farming becomes a minor occupation, and (c) the market for new agricultural labor (or young generation farmers) is getting tighter. Moreover, (2) the numbers of city craftsmen, servicemen, peddlers and the like are now gradually declining and their wages substantially increasing.[46] In Ohkawa's terminology, this is the stage of "semi-limited" supply of labor.[47] At this stage of development, excess demand for labor begins to appear on the stage, although a considerable portion of the overemployed persons may still remain to be absorbed. Consequently, not only capital widening but capital deepening will take place.

(2) *Demand for Labor and Wage-differential Structure*

Several alternative explanations may be presented for the wage differentials in question. For instance, the intra-industry wage differentials may be ascribed to: (1) technological differentials, such as those in capital intensity or in labor coefficients, (2) institutional barriers, such as employment tenure or union activities, which are relatively concentrated in large-scale firms

[41] The same idea is expressed by Ackly [1] in connection with the Italian economy (p. 548). According to Umemura, the idea of family-based decision making should be credited to a Russian economist Chayanov (*The Theory of Peasant Economy*, Homewood, Ill.: Richard D. Irwin, 1966), i.e. to his "lohnarbeitlosen Wirtschaft" (Umemura [52]). See also Mazumder [15], where the author develops an idea akin to the one above.

[42] Takahashi [47].

[43] Tsujimura [50].

[44] Obi, Ozaki and Sano [25].

[45] Umemura [51], pp. 138–45.

[46] Umemura [56], pp. 120–31.

[47] Ohkawa [34].

TABLE 8. ENTRANCE WAGES OF NEWLY GRADUATING JUNIOR-HIGH BOYS*
(In Current Yen)

Year	Size of Firms (Number of Employees)			
	500 and more	100–499	15–99	Average
1953	4,300	3,400	2,900	3,500
1954	4,934	4,104	3,561	3,808
1955	4,988	4,239	3,813	4,020
1956	5,230	4,450	3,910	4,150
1957	5,570	4,710	4,380	4,660
1958	5,700	5,170	4,760	4,870
1959	5,830	5,350	5,090	5,180
1960	6,470	6,140	5,930	6,020
1961	7,490	7,500	7,330	7,390
1962	9,070	9,090	9,100	9,390
1963	9,860	9,860	9,980	9,910

* Monthly earnings.

Source: Originally based on Rōdōshō, Shokugyō Anteikyoku (Employment Security Bureau, Ministry of Labor), *Shinki Gakkō Sotsugyōsha no Shokugyō Shōkai Jōkyō oyobi Shoninkyū Chōsa Kekka* [Annual Report on the Survey on Employment and Entrance Wages of the Newly Graduating Labor Force]; Cited from Nakamura [21], pp. 69–70.

(after W.W.II), (3) difference in quality of labor, (4) production agents' behavioral characteristics which have hitherto been ignored, and (5) dynamic forces in action. The first two will be the topics of the following pages.

Labor Productivity and Capital Intensity

Komiya and Uchida have carried out a three-way analysis of variance on two selected industries, textile and non-electric machinery for the year 1958; they found that labor coefficients (labor-output ratios) are significantly different according, among other things, to the size of the firm. Their conclusion is that "[t]here is a need to define the sectors of input-output analysis not only on the basis of major products but also on that of the size of individual units of production."[48] One may be inclined, on the strength of this finding, to argue that wage differentials are a measure of the extent to which technological circumstances create differences in labor-output ratios.[49] However, there is no a priori ground that different levels of average productivity should be directly associated with different levels of wages so long as we assume homogeneous labor and competitive markets. It is necessary to introduce some concurrent factors, institutional or otherwise, which prevent wages from being equalized.[50]

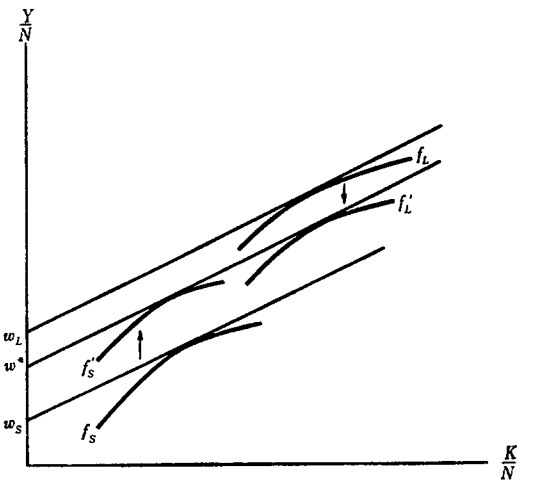
[48] Komiya-Uchida [10].

[49] See also Blumenthal [2], pp. 64–67.

[50] In the same vein, an implicit assumption underlies Wolfson's attempts to explain geographical wage differentials by the difference in productivity. Namely, the supposition is that agricultural workers are not capable of moving from one place to another depending on the prospect of climate, which is a major factor in deciding the success or failure of crop production. My argument is consistent with a finding of his, that the coefficients of determination become smaller when the area is divided into three homogeneous product regions. Shinohara's work indicates also that the association between wage structure and average labor productivity tends to be weaker, the more homogeneous is the industry-mix he chooses. See Wolfson [59], pp. 249–51 and Shinohara [40], p. 35.

In contrast to the wage floor which is set by the supply conditions, it may be contended that the "ceiling" of the wages is fixed by the firm's ability to pay. Accordingly, the focus of the discussion shifts from labor to capital and product markets. Miyazawa and Shinohara have recently presented a hypothesis which attributes wage differentials to the differences in average productivity which are, in turn, explained by the differentials in capital intensity, due to the imperfection in capital markets.[51] They have independently demonstrated that the limited amount of capital fund has been distributed in such a manner that larger corporations have acquired bank loans relatively easily compared with smaller competitors. The stronger financial position made it possible for the former to introduce relatively capital-intensive methods of production and hence higher levels of labor productivity. This is in essence the explanation of the persistent supremacy of large firms over small ones with respect to their abilities of pay. In other words, a high level of capital-labor ratio is associated with a higher level of average productivity of labor, which in turn explains wage differentials by size of the firm. In Figure 3 f_S and f_L represent productivity functions for small and large firms, respectively. The figure appears to explain why there are wage differentials even in equilibrium ($w_L > w_S$).

FIG. 3. HYPOTHETICAL PRODUCTIVITY FUNCTIONS



Miyazawa-Shinohara's capital concentration hypothesis is, in a sense, a modified version of the institutional barrier theory, since they seek to ascribe the differentials in capital intensity to the imperfection of the capital market. However, merely pointing to imperfection in the capital market is not convincing as a valid explanation for persistent intra-industry wage differentials. It is not explained, for one thing, why a rational businessman wishes to incur higher costs when cheaper labor is available at hand. In order to complete the circle of logic, one must introduce one or more of the following factors: (i) the differential structure of product prices; (ii) the heterogeneity of labor; or (iii) different degrees of union pressure according to the size of the firms. For, so long as competitive forces are in action, the final

[51] See E.P.A. [9], Miyazawa [18], and Shinohara [39].

equilibrium will not be attained until both f_S and f_L in the above diagram share the same tangent line (such as f'_S and f'_L). It should be observed in this latter case that we still have different levels of both capital intensity and of average labor productivity, but no wage differentials.[52]

In his rebuttal to the criticism, Shinohara has made it clear that he takes the imperfection of both product and labor markets as given. His point is, he argues, that giant corporations in a rapidly developing economy are eager to introduce technology and to invest in new facilities no matter what the current product price and factor costs may be. The capital concentration on the basis of preferential financing has been the solution to the demanding task of rapid growth, a byproduct of which is the inter-scale wage differentials.[53] Unfortunately, this type of argument only ends in a tautology until an independent explanation is given as to why there are imperfections in product and labor markets.

Unionism

This leads us to the problem of union pressure. It has already been noted in Section III above that the wage variations due to industry and size differences are in part ascribable to the strength of unionism. It is in fact true that organized labor shows heavy concentration among larger establishments (see, e.g. Table 9 below). In addition, empirical findings suggest that there are significant impacts of unionsim on wage structure and money wage levels.[54]

TABLE 9. ESTIMATED RATES OF UNIONIZATION: BY SIZE OF ENTERPRISE (1963)
(Private Firms Only)

Size of Enterprise	All Industries	Manufacturing
500 or more employees	60.5%	69.0%
100–499	38.4	42.9
30– 99	10.6	12.4
29 or less	3.4	1.9
Average	27.8	35.9

Source: Rōdōshō (Ministry of Labor), *Rōdō Kumiai Kihon Chōsa* (Labor Union Survey), 1963.

Therefore, it seems safe to infer that the structure of union organizations and their strategies must have been partly responsible for creating and maintaining intra-industry wage differentials during the post-W.W.II days.

But would there be no wage differentials were it not for trade unions?

One should note that there are indications that the differential structure did exist in per-W.W.II period.[55] At the same time, it is also well known that unionism was quite weak in those days compared with the post-W.W.II period (see Table 10); furthermore, its strength

[52] Essentially the same point is made by Ito [7].

[53] Shinohara [38], Ch. 4.

[54] Ono [35] and Watanabe [58]. Ono's paper investigates the influence of trade unions on inter-industry wage differentials using the cross-sectional data for 1954. Watanabe, on the other hand, tests the Phillips-Lipsey hypothesis on the post-W.W. II manufacturing data (quarterly, 1956–62). He observes that "in general, the cost-of-living index or the rate of change of consumer prices plays an active role in wage adjustments and this variable may well be interpreted as a strategic indicator of union power...." (p. 42)

[55] See, e.g. Ohkawa-Rosovsky [27].

TABLE 10. MEMBERSHIP OF TRADE UNIONS, SELECTED YEARS

Year	Membership			
	All Industries		Manufacturing	
	Total, in Thousands	Percentage of Total Number of Employees	Total, in Thousands	Percentage of Total Number of Manufacturing Employees
1930	331	7.5	164	7.9
1935	409	6.9	176	6.3
1938	375	5.5	176	4.6
1948	6,677	54.3	2,200	—
1950	5,774	45.9	1,837	—
1955	6,185	39.5	1,937	38.1
1960	7,516	34.1	2,544	32.6
1965	10,070	35.8	3,777	37.8

Sources: Pre-W.W.II period: *Nihon Rōdō Undō-shi-ryō* [Collected Documents on Japanese Labor Movement], Vol. 10, pp. 424–26; based on the surveys taken by Ministries of Interior and of Welfare.

Post-W.W.II period: Rōdōshō (Ministry of Labor), *Rōdō Kumiai Kihon Chōsa* (Labor Union Survey) and Sōrifu Tōkeikyoku (Bureau of Statistics, Prime Minister's Office), *Rōdōryoku Chōsa Hōkoku* (Monthly Report on the Labor Force Survey), June issues.

lay mostly in medium- or small-scale firms.[56] This being the case, the story is hardly complete until one presents a theory of wage-differential structure consistent with both economic rationale and the forces of market mechanism.

V. *Concluding Remarks*

It seems that the Japanese economy has not quite as yet passed the "classical" stage of economic development insofar as labor supplies are concerned. The economy is presently in the process of moving from the "unlimited" to the "semi-limited" phase (in Ohkawa's sense). Schematically speaking, the economy may be divided into two sectors: traditional and capitalistic. The less advanced, or traditional, sector provides abundant supplies of labor with comparatively low rates of compensation. In this type of socio-economic setting, the level of manufacturing wages is largely supply-determined, the surplus of labor being conveniently "disguised" in the form of overemployment in the traditional sector.

The gist of our reasoning runs roughly as follows. We believe that both supply and demand structures must be incorporated in order to clarify the persistence of the wage differentials according to the size of the firm. The relatively low level of wages sustained by the semi- or un-limited labor supply has undergirded the successful management of small-scale firms with relatively labor-intensive operations. On the other hand, larger firms are characterized

[56] Sumiya [44], pp. 165–68. This, of course, does not leave out the possibility that the employers of large firms were willing to pay above-average wage rates in order to protect themselves from unionization. However, the magnitude of the differentials was much too great to be explained away by this factor.

by a higher degree of capital-intensity which has been made possible, at least in part, by preferential dealings in the capital market. The consequent economies of scale (both pecuniary and non-pecuniary) and possibly advantages in the product market (price differentiation) have endowed large-scale companies with better ability to pay and, as a result, they are potentially capable of incurring higher rates of compensation, if necessary.

We shall contend that the above circumstances constitute the *necessary* condition for conspicuous wage differentials by size of the firm. However, they are by no means sufficient. In other words, the abundance of labor supply and the higher ability to pay of larger firms are consistent with the intra-industry wage differentials; but they do not offer the rationale why large firms must pay higher wages. One may argue, in fact, that there is no such necessity, unless there exist powerful institutional factors such as paternalism or unionism. As for paternalism, it seems hard to believe that Japanese businessmen are so benevolent that they pay higher wages without any economic justification.

It is the existence of "internal" labor market within the firm that constitutes the *sufficient* condition. In a modern manufacturing firm with diversified operations, not every job is exposed directly to the influence of the labor market at large (i.e. "external" market). In case of slackening demand, for instance, the firm endeavors to keep the skilled workmen and to make adjustments in the work force by putting tighter control on new entrants and/or discharging the unskilled. Akin to this view is the fact that labor as a factor of production is in many cases quite heterogeneous in quality. In particular, compensations to various types of skilled labor should often be considered as overhead costs. Labor indeed is a special kind of factor of production in that technological advance is naturally embodied in it; this fact indeed furnishes the entrepreneurial incentive for investing in human capital by way of general education, on-the-job training, apprenticeship program, etc., provided that regularity of labor force within the firm may be expected with reasonable certainty.[57]

Immediately following the War, labor economists in the United States tended to stress the institutional peculiarities in labor markets and thus to deëmphasize the market forces in employment and wage determination. In more recent years, by contrast, the trend seems to be reversing gradually. The excess demand adjustment mechanism underlying the Phillips-Lipsey model, for example, postulates the effective functioning of the labor market. Clearly one approach does not exclude the possibility of the other. It is mandatory that we elucidate the function of the market forces in the given framework of institutional arrangements.

REFERENCES

[1] Ackley, Gardner. *Macroeconomic Theory*. N.Y.: The Macmillan Co., 1961.

[2] Blumenthal, Tuvia. "The Effect of Socio-Economic Factors on Wage Differentials in Japanese Manufacturing Industries." *Kikan Riron Keizaigaku* (The Economic Studies Quarterly), XVII, 1 (September 1966), 53–67.

[3] Enke, S. "Economic Development with Unlimited and Limited Supplies of Labour." *Oxford Economic Papers* (n.s.), 14, 2 (June 1962), 158–72.

[4] Fei, J.C.H. and Gustav Ranis. "Capital Accumulation and Economic Development." *American Economic Review*, LIII, 3 (June 1963), 283–313.

[57] Tsujimura has contended that difference in quality of labor plays a significant role in determining the level of pecuniary remuneration. Tsujimura [49].

[5] Fei, J.C.H. and Gustav Ranis. *Development of the Labor Surplus Economy: Theory and Policy.* Homewood, Ill.: Richard D. Irwin, 1964.

[6] Gleason, Alan H. "Chronic Underemployment: A Comparison Between Japan and the United States." *The Annals of the Hitotsubashi Academy*, X, 1 (August 1959), 64–80.

[7] Itō, Mitsuharu. "Nijū-kōzō-ron no Tembō to Hansei [Survey and Reflections on the Controversy on Dual Structure]." In: *Nihon Keizai no Kiso Kōzō* [The Basic Structure of Japanese Economy], Tokyo: Shunjūsha, 1962, 169–212.

[8] Johnston, John. *Statistical Cost Analysis.* N.Y.: McGraw-Hill, 1960.

[9] Keizai Kikakuchō, Keizai Kenkūsho (The Institute of Economic Research, Economic Planning Agency). *Shihon Kōzō to Kigyōkan Kakusa* [The Asset Structure and Inter-firm Differentials]. Research Series No. 16, Tokyo, 1960.

[10] Komiya, Ryūtarō and Tadao Uchida "The Labour Coefficient and the Size of Establishment in Two Japanese Industries." In: Tibor Barna, ed., *Structural Interdependence and Economic Development*, London: Macmillan, 1963, Ch. 14.

[11] Leibenstein, Harvey. "Technical Progress, the Production Function and Dualism." *Banca Nazionale del Lavoro Quarterly Review*, No. 55 (December 1960), 3–18 [Reprint No. 177, Institute of Industrial Relations, University of California (Berkeley)].

[12] Lester, Richard. "A Range Theory of Wage Structure." *Industrial and Labor Relations Review*, 5, 4 (July 1952), 483–500.

[13] Lewis, W. Arthur. "Economic Development with Unlimited Supplies of Labour." *The Manchester School of Economic and Social Studies*, 1954; reprinted in: A.N. Agarwala and S.P. Singh, eds., *The Economics of Underdevelopment*, N.Y.: Oxford University Press, 1958, 400–49.

[14] Masui, Yukio. "Nōka Rōdōryoku no Kyōkyū Kakaku [On the Supply Price of Labor Force in Agriculture]." In: K. Ohkawa, ed., *Nihon Nōgyō no Seichō Bunseki* [Analyses of the Growth in Japanese Agriculture], Tokyo: Taimeidō, 1963.

[15] Mazumder, Dipak. "Underemployment in Agriculture and Industrial Wage Rate." *Economica*, XXVI, 104 (November 1959), 328–40.

[16] Minami, Ryōshin and Akira Ono. "Nōka Jinkō Idō to Keiki Hendō to no Kankei ni tsuite no Oboegaki [Note on the Relationship between Agricultural Labor Mobility and Business Cycles]." *Kikan Riron Keizaigaku* (The Economic Studies Quarterly), XII, 3 (June 1962), 64–67.

[17] Mishan, E.J. "Survey of Welfare Economics, 1939–1959." *Economic Journal*, LXX, 278 (June 1960), 197–265.

[18] Miyazawa, Kenichi. "The Dual Structure of the Japanese Economy and Its Growth Pattern." *The Developing Economies*, II, 2 (June 1964), 147–70.

[19] Murakami, Yasusuke and Machiko Kubo. "Wagakuni Nōson Kōzō ni kansuru Ichi-bunseki [An Analysis on the Structure of Japanese Farming]." In: Y. Tamanoi and T. Uchida, eds., *Nijū-kōzō no Bunseki* [Treatises on the Dual Structure], Tokyo: Tōyō Keizai Shimpōsha, 1964, 215–41.

[20] Nakajima, Chihiro. "Nōka no Shutaiteki Kinkō to Kajō Shūgyō [The Equilibrium of the Farming Household and Overemployment]." In: K. Ohkawa, ed., [29], 67–83.

[21] Nakamura, Atsushi. "Shoninkyū no Hendō to sono Eikyō ni kansuru Memo [Note on the Fluctuations of Newentrants' Wages and Their Influence]." *Keizai Bunseki* [Economic Analyses], No. 14 (April 1965), 61–76.

[22] Namiki, Shōkichi. "Nōka Jinkō no Sengo Jyūnen (The Farm Population in a Decade after the War)." *Nōgyō Sōgō Kenkyū* (Quarterly Journal of Agricultural Economy), 9, 4 (October 1955), 1–46.

[23] Namiki, Shōkichi. "Sangyō Rōdōsha no Keisei to Nōka Jinkō [The Formation of Industrial Labor and Agricultural Population]." In: S. Tōbata and K. Uno, eds., *Nihon Shihonshugi to Nōgyō* [Capitalism and Agriculture in Japan], Tokyo: Iwanami Shoten, 1959, 138–90.

[24] Noda, Tsutomu. "Nōka no Shotokuteki Chii [On the Income Level of Agricultural Households]." In: Ohkawa, ed., [29], 137–50.

[25] Obi, Keiichirō, Iwao Ozaki and Yōko Sano. "Wagakuni ni okeru Shūgyō Kikō no Keiryōteki Bunseki (An Econometric Analysis of the Employment Strcuture in Japan: Report of the Research Project on Enterprise [and] Household Behavior of Keio University)." *Nihon Rōdō Kyōkai*

Zasshi (The Monthly Journal of the Japan Institute of Labour), I, 2-3 (May-June 1959), 52-64 (May) and 46-58 (June).

[26] O.E.C.D. *Wages and Labour Mobility, Supplement No. 1: Abstracts of Selected Articles.* Paris, 1966.

[27] Ohkawa, Kazushi and Henry Rosovsky. "A Century of Growth." In: W. W. Lockwood, ed., *The State and Economic Enterprise in Japan*, Princeton: Princeton University Press, 1965, 47-92.

[28] Ohkawa, Kazushi. "The Differential Employment Structure of Japan." *The Annals of the Hitotsubashi Academy*, IX, 2 (April 1959), 205-17.

[29] Ohkawa, Kazushi., ed. *Kajō Shūgyō to Nihon Nōgyō* [Overemployment and Japanese Agriculture]. Tokyo: Shunjūsha, 1960.

[30] Ohkawa, Kazushi. *Nihon Keizai Bunseki* [Analyses of the Japanese Economy]. Tokyo: Shunjūsha, 1962.

[31] Ohkawa, Kazushi and Ryōshin Minami. "The Phase of Unlimited Supplies of Labor." *Hitotsubashi Journal of Economics*, 5, 1 (June 1964), 1-15.

[32] Ohkawa, Kazushi and Henry Rosovsky. "Postwar Japanese Growth in Historical Perspective: A Second Look." A paper presented at International Conference on Economic Growth, Tokyo, September 5-10, 1966. (Mimeo.)

[33] Ohkawa, Kazushi and Henry Rosovsky. "Recent Japanese Growth in Historical Perspective." *American Economic Review*, LIII, 2 (May 1963), 578-88.

[34] Ohkawa, Kazushi. "Rōdō Kyōkyū ga Han-seigenteki na Keizai (Semi-limited Supplies of Labor)." *Keizai Kenkyū* (The Economic Review), 15, 3 (July 1964), 254-57.

[35] Ono, Hisashi. "Rōdō Kumiai to Sangyōkan Chingin Kakusa [Trade Unions and Inter-industry Wage Differentials]." *Kikan Riron Keizaigaku* (The Economic Studies Quarterly), XII, 1 (September 1961), 15-26.

[36] Reder, Melvin W. "The Theory of Occupational Wage Differentials." *American Economic Review*, XLV, 5 (December 1955), 833-52.

[37] Reynolds, Lloyd and C.H. Taft. *The Evolution of Wage Structure.* New Haven: Yale University Press, 1956.

[38] Shinohara, Miyohei. *Keizai Seichō no Kōzō* [The Structure of Economic Growth]. Tokyo: Kunimoto Shobō, 1964.

[39] Shinohara, Miyohei. *Nihon Keizai no Seichō to Junkan* [The Growth and Cycles in the Japanese Economy]. Tokyo: Sōbunsha, 1961.

[40] Shinohara, Miyohei. *Shotoku Bumpai to Chingin Kōzō* [Income Distribution and Wage Structure]. Tokyo: Iwanami Shoten, 1955.

[41] Shinohara, Miyohei. "Survey of Japanese Literature on the Samll Industry—with Selected Bibliography." (Mimeo.)

[42] Steindl, Joseph. *Small and Big Business; Economic Problem of the Size of Firms.* Oxford: Basil and Blackwell, 1945.

[43] Sumiya, Mikio. *Nihon no Rōdō Mondai* [Labor Problems in Japan]. Tokyo: University of Tokyo Press, 1964.

[44] Sumiya, Mikio. *Nihon Rōdō Undōshi* [A History of the Labor Movement in Japan]. Tokyo: Yūshindō, 1966.

[45] Sumiya, Mikio. "Shihon to Rodo [Capital and Labor]." In: Nihon Jimbun Kagakukai (The Japan Cultural Science Society), ed., *Hōken Isei* [Feudalistic Remnants], Tokyo: Yūhikaku, 1951, 123-36.

[46] Taira, Kōji. "The Dynamics of Japanese Wage Differentials, 1881-1959." Unpublished Ph.D. thesis, Stanford: Stanford University, 1961.

[47] Takahashi, Iichirō. "Jika Rōdō Tōka no Mekanizumu [On the Determination of the Level of Self-employment in Farming Households]." In: T. Matoba, ed., *Kyūshū ni okeru Keizai to Nōgyō* (Economy and Agriculture in Kyushu), Tokyo: Nōgyō Sōgō Kenkyūjo (The National Research Institute of Agriculture, Ministry of Agriculture), 1959, 137-91.

[48] Takizawa, Kikutarō. *Nihon Kōgyō no Kōzō Bunseki; Nihon Chūshō Kigyō no Ichi-kenkyū* [A Structural Analysis of Japanese Manufacturing Industries; A Study of Japanese Middle- and Small-scale Firms]. Tokyo: Shunjūsha, 1965.

[49] Tsujimura, Kōtarō. "Chingin Keitai to Sangyōnai Chingin Bumpu [The Forms of Wage Payment and Intra-industry Wage Distribution]." In: I. Nakayama, ed., *Chingin Kihon Chōsa* [Basic Surveys on Wages], Tokyo: Tōyō Keizai Shimpōsha, 1956, 800–41.

[50] Tsujimura, Kōtarō. "Rōdō Kyōkyū ni kansuru Oboegaki (A Note on the Theory of Labor Supply)." *Mita Gakkai Zasshi* (Mita Journal of Economics), 49, 10 (October 1956), 15–26.

[51] Umemura, Mataji. *Chingin, Koyō, Nōgyō* [Wages, Employment, and Agriculture]. Tokyo: Taimeidō, 1961.

[52] Umemura, Mataji. "Kazoku Keizai to Rōdō Shijō—Senzai Shitsugyō no Kenkyū (The Family Firm and Labor Market—A Study on Disguised Unemployment)." *Keizai Kenkyū* (The Economic Review), 5, 2 (April 1954), 112–19.

[53] Umemura, Mataji. "Keiki Hendōka no Rōdō Shijō ni okeru Kanshō Sayō (Cushioning Functions in the Labor Market during Business Cycles)." *Keizai Kenkyū* (The Economic Review), 14, 1 (January 1963), 69–71.

[54] Umemura, Mataji. "Rōdōryoku no Kōzō to Hendō (The Structure and Behavior of the Labor Force." *Keizai Kenkyū* (The Economic Review), 8, 3 (July 1957), 227–33.

[55] Umemura, Mataji. "Rōdōryoku no Kyōkyū Kōzō to Kyōkyū Kakaku [The Mechanism of Labor Supply and the Formation of the Supply Price of Labor]." In: M. Shinohara and M. Funabashi, eds., *Nihon-gata Chingin Kōzō no Kenkyū* [Studies on Japanese Wage Structure], Tokyo: Rōdō Hōgaku Kenkyūjo, 99–136.

[56] Umemura, Mataji. *Sengo Nihon no Rōdōryoku: Sokutei to Hendō* [The Labor Force in the Postwar Japan: Its Measurement and Analysis]. Tokyo: Iwanami Shoten, 1964.

[57] Umemura, Mataji. "Wagakuni ni okeru Rōdōryoku-ritsu no Chōki Hendō [Long-term Fluctuations in the Labor Participation Rates in Japan]." In: Tōkei Kenkyūkai [Statistical Research Association], *Shūgyō ni kansuru Kenkyū* [Studies on Employment], II, 1957, 5–17. (Mimeo.)

[58] Watanabe, Tsunehiko. "Price Changes and the Rate of Change of Money Wage Earnings in Japan, 1955–1962." *Quarterly Journal of Economics*, LXXX, 1 (February 1966), 31–47.

[59] Wolfson, Robert J. "An Econometric Investiagtion of Regional Differentials in American Agricultural Wages." *Econometrica*, 26, 2 (April 1958), 225–57.